

CLAIMS

1. A method of patterning a functional material onto a substrate, comprising the steps of (a) applying a layer of functional material to at least one
5 major surface of said substrate; (b) applying a layer of protective material, soluble in a solvent in which the functional material is insoluble, over said layer of functional material; (c) removing areas of said layers of protective and functional materials in well-defined regions on the substrate; and (d) removing the remaining exposed protective material
10 from the substrate by dissolution in said solvent.
2. The method of claim 1, wherein in step (c) said layers of functional material and said layer of protective material are removed from the well-defined regions by laser ablation.
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3. The method of claim 1 or 2, wherein after step (c) a second functional material is deposited at least onto the substrate in the well-defined regions; a further layer of protective material, soluble in a solvent in which the second functional material is insoluble, is applied over said
20 second functional material; areas of said materials that overly the edge of the well-defined regions are removed and after step (d) the remainder of said layer of protective material and any of the second functional material other than in the well-defined regions are removed.
- 25 4. The method of claim 3, wherein said areas of said materials that overly the edge of the well-defined regions are removed by laser ablation.
5. The method of claim 3 or 4, wherein after step (d) the remainder of said layer of protective material and any of the second functional material

other than in the well-defined regions are removed using a lift off process.

- 5 6. The method of claim 3, 4 or 5, comprising further steps of patterning a further functional material to the substrate, the further steps comprising repeating the steps of claim 3 for the further functional material.
- 10 7. The method of any preceding claim, wherein in step (c) the layer of functional material is not completely removed from the well-defined areas on the substrate.
8. The method of any preceding claim, wherein said substrate comprises glass.
- 15 9. The method of any one of claims 1 to 8, wherein said substrate comprises silicon.
10. The method of any one of claims 1 to 9, wherein said substrate comprises plastics material.
- 20 11. The method of any preceding claim, wherein said substrate comprises a charge injection layer.
12. The method of claim 11, wherein said charge injection layer is patterned.
- 25 13. The method of any preceding claim, wherein said at least one major surface of the substrate is structured.

14. The method of claim 13, wherein said at least one major surface of the substrate comprises a raised wall structure, which may be of inorganic, organic, or metal material.
- 5 15. The method of any preceding claim, wherein said protective material comprises organic material.
16. The method of claim 15, wherein said protective material comprises a water soluble polymer.
- 10 17. The method of claim 16, wherein said protective material is selected from poly(vinyl alcohol), polymethyl ether, polymethylacrylamide, doped polythiophene, polyethylene glycol and doped polyaniline.
- 15 18. The method of claim 15, wherein said protective material comprises an alcohol soluble polymer.
19. The method of claim 15 wherein said protective material comprises polymers that are soluble in polar solvents such as, or similar to, dimethyl formamide or acetonitrile.
- 20 20. The method of claim 19 wherein said protective material is selected from polystyrene, poly(methylmethacrylate) or poly-ethylene oxide.
- 25 21. The method of any one of claims 1 to 14, wherein said protective material comprises inorganic material.
22. The method of claim 19, wherein said protective material is selected from silicon, silicon nitride and silicon oxide.

23. The method of any preceding claim, wherein the functional material is deposited by a method selected from spin coating, evaporation, sputtering and printing .
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24. The method of any preceding claim wherein the protective material is deposited by a method selected from spin coating, spraying, evaporation, printing and sputtering.
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25. The method of any preceding claim, wherein said functional material comprises an organic electro-optically active material.
26. The method of any one of claims 1 to 22, wherein said functional material comprises a biochemical or biological reagent
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27. An opto-electronic device made by the method of any preceding claim.